AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-2. (canceled).

3. (currently amended): The ~~stent as claimed in of claim 1~~method of claim 32, wherein the non-shape memory material is selected from the group consisting of at least one of an x-ray contrast substance, an inorganic nanoparticle material, an antiinflammatory active substance, an analgetic substance, an antibiotic active substance, an active substance against viruses and fungi, an antithrombic active substance, an cytostatic active substance, an immunosuppressive active substance and an active substance for lowering restenosis.

4. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the at least one nonmetallic SMP is selected from the group consisting of at least one of an SMP-containing polymer network, a thermoplastic SMP material, an SMP-containing composite polymer material, an SMP-containing polymer blend and combinations thereof.

5-16. (canceled).

17. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP-containing material is selected from the group consisting of at least one of biocompatible and haemocompatible.

18. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has an e-module value of approximately 0.5 to approximately 50 Mpa.

19. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has an elongation of break of approximately 100% to approximately 1200%.

20. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset fixation value of more than approximately 90%.

21. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset fixation value of more than approximately 92%.

22. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset fixation value of more than approximately 95%.

23. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset fixation value of more than approximately 98%.

24. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 90%.

25. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 92%.

26. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 95%.

27. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP has a reset ratio after five cycles in a thermo-mechanical experiment of more than approximately 98%.

28. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP comprises at least one of caprolacton units, pentadecalacton units, ethyleneglycol units, propyleneglycol units, lactic acid units, glycol acid units and combinations thereof.

29. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the SMP comprises cross-linked caprolactonmacromonomers.

30. (currently amended): The ~~stent of claim 1~~method of claim 32, wherein the stent is selected from the group consisting of being at least one of extruded, coated, casted, spinned, weaved and combinations thereof.

31. (canceled).

32. (currently amended): A method of treatment of a patient needing a stent comprising the steps of:

(~~i~~a) placing ~~the~~ a stent ~~of claim 1~~ onto a catheter selected from the group consisting of at least one of a temperature-controlled balloon catheter and a balloon catheter equipped with a suitable light source, wherein the stent comprises a material selected from the group consisting of (i) a material consisting essentially of at least one non-metallic shape memory polymer (SMP) having at least one transition temperature T_{trans} and (ii) a scaffold comprising a non-shape memory polymer that supports at least one material consisting essentially of at least one non-metallic SMP having at least one transition temperature T_{trans}, and wherein the stent exists in a permanent shape, ~~with an optical fiber;~~

(~~ii~~b) inserting the stent into a desired position;

(~~iii~~c) heating the stent above the temperature T_{trans} by means of the catheter; ~~expanding the stent by application of at least one first stimulus; and~~

(~~iv~~d) expanding the stent to a temporary shape by means of the catheter; ~~fixing the expanded stent by exposure to at least one second stimulus in a patient in need thereof.~~

(e) cooling the expanded stent by means of the catheter below T_{trans} or irradiating the stent with light of a suitable wavelength to fix the stent in a temporary shape; and

(f) removing the catheter.

33-34. (canceled).

35. (currently amended): A method of treatment of a patient needing removal of ~~the~~ a stent ~~of claim 1 comprising~~comprising the steps of:

(a) inserting a catheter into a stent portion, the catheter being selected from the group consisting of at least one of a temperature-controlled balloon catheter and a balloon catheter equipped with a suitable light source, wherein the stent comprises a material selected from the group consisting of (i) a material consisting essentially of at least one non-metallic shape memory polymer (SMP) having at least one transition temperature T_{trans} and (ii) a scaffold comprising a non-shape memory polymer that supports at least one material consisting essentially of at least one non-metallic SMP having at least one transition temperature T_{trans}, and wherein the stent exists in an expanded temporary shape,

(b) expanding the balloon to produce a direct contact with the stent;

(c) heating the stent above the temperature T_{trans} by means of the catheter or irradiating the stent with light, thereby activating the shape memory effect and the recovery of the permanent compressed shape of the stent;

(d) relieving the balloon thereby fixing the contracting stent on the balloon; and

(e) removing the catheter with the stent.~~(i) inserting a balloon catheter into an implantation location;~~

~~(ii) applying at least one stimuli to the stent in order to activate its shape memory; and~~

~~(iii) removing the stent and balloon catheter in a patient in need thereof.~~

36-37. (canceled).

38. (currently amended): The ~~stent of claim 37~~method of claim 35, wherein the at least one non-shape memory ingredient is selected from the group consisting of at least one of an x-ray contrast substance, an inorganic nanoparticle material, an anti-inflammatory active substance, an analgetic substance, an antibiotic active substance, an active substance against viruses and fungi, an antithrombic active substance, an cytostatic active substance, an immunosuppressive active substance and an active substance for lowering restenosis.

39. (currently amended): The ~~stent of claim 37~~method of claim 35, wherein the at least one nonmetallic SMP is at least one of an SMP-containing polymer network, a thermoplastic SMP material, an SMP-containing composite polymer material, an SMP-containing polymer blend and combinations thereof.

40. (currently amended): The ~~stent of claim 37~~method of claim 35, wherein the SMP is selected from the group consisting, of at least one of caprolacton units, pentadecalacton units, ethyleneglycol units, propyleneglycol units, lactic acid units, glycol acid units and combinations thereof.

41-45. (canceled).